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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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<b>(21) International Application Number:</b> PCT/US97/21356 <b>(22) International Filing Date:</b> 21 November 1997 (21.11.97)  <b>(30) Priority Data:</b> 60/031,424 21 November 1996 (21.11.96) US  <b>(71) Applicant:</b> INTELLECTUAL PROTOCOLS, L.L.C. [US/US]; 271 Treetop Circle, Nanuet, NY 10954 (US). <b>(72) Inventor:</b> GLOGAU, Jordan, J.; 271 Treetop Circle, Nanuet, NY 10954 (US). <b>(74) Agent:</b> SHAPIRO, Stuart, B.; Epstein, Edell & Retzer, Suite 400, 1901 Research Boulevard, Rockville, MD 20850 (US).		<b>(81) Designated States:</b> CA, JP, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).  <b>Published</b> <i>Without international search report and to be republished upon receipt of that report.</i>
<b>(54) Title:</b> WEB SITE COPY PROTECTION SYSTEM AND METHOD  <b>(57) Abstract</b>  A copy protection system and method protect web sites and other works in computer readable form from unauthorized access and/or reproduction. In particular, the copy protection system examines a web site or other work in computer readable form to ascertain the web site structure and individual web site components. A web site owner selects identified web site components for protection and provides a protection level for those components. An end-user attempting to access protected web site components is directed to obtain a license wherein the copy protection system displays licensing terms to the end-user and administers a test relating to the licensing terms. Upon passing the test, the copy protection system grants the end-user a license and enables the end-user to download software that facilitates access and/or reproduction of the protected web site components. If the end-user does not obtain a license, the copy protection system permits the end-user to access and/or reproduce only unprotected web site components.		

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**PATENT APPLICATION**

Title: Web Site Copy Protection System and Method

## **CROSS-REFERENCE TO RELATED APPLICATIONS**

This application claims priority from U.S. Provisional Patent Application Serial No. 60/031,424, entitled "Web Site Copy Protection System and Method", filed November 21, 1996. The disclosure of that provisional patent application is incorporated herein by reference in its entirety.

## **BACKGROUND OF THE INVENTION**

### **1. Technical Field**

The present invention pertains to computer systems for protecting web sites or other works in computer readable form from unauthorized access and/or reproduction. In particular, the present invention is directed toward a computer system for enabling only licensed end-users to access protected material of an internet web site wherein the computer system may automatically present licensing terms to an unlicensed end-user and grant a license to the unlicensed end-user upon the unlicensed end-user's acceptance of the licensing terms.

### **2. Discussion of the State of the Art**

Briefly, the growth of the World Wide Web (herein referred to as the Web) has been an unprecedented event in the history of computers and telecommunications. Internet traffic has increased from five terabytes (i.e., tera represents  $10^{12}$  or one trillion) a day in the fall of 1994 to 250 terabytes a day in the summer of 1996. Further, personal computer sales will surpass television sales in the United States for the first time in 1996, while data telecommunications traffic will similarly overtake voice traffic. Most of these events can be attributed to the growth of the Internet and the Web.

1           Although the Web is a wonderful environment to transact business and disseminate  
2 information, there are a number of disadvantages that make it unattractive. Specifically,  
3 there is typically no provision on the Internet, and the Web in particular, to protect material  
4 from being indiscriminately copied and reproduced with impunity. Since the act of  
5 transferring files from one computer to another via the Internet involves essentially exact  
6 reproduction of the material, it is difficult to protect that material from unauthorized use.  
7 Although copyright protection may assist in deterring the unauthorized reproduction of  
8 material, the computer industry has been restricted in enforcing copyrights in certain  
9 situations; for example, it is lawful to reproduce material for purposes of back-ups (i.e.,  
10 saving the material in case of data loss due to computer or memory failure). Further, the  
11 Internet enlarges the protection problem because of its worldwide nature and the fact that  
12 the Internet is designed based in part on the concept of free reproduction. Currently, the  
13 software industry believes that the ratio of unauthorized reproductions to authorized  
14 reproductions is approximately five to one.

15           Typically, a web site includes various types of works, such as text, images, art  
16 work, audio and video. These works are generally eligible for copyright registration with  
17 the appropriate authority (e.g., the Copyright Office) wherein the copyright for the works  
18 automatically exists upon their creation, and registration of the work with the appropriate  
19 authority (e.g., the Copyright Office) enables the copyright or web site owner to enforce  
20 the copyright. Although each web site work, and the entire web site itself, may be  
21 protected by copyright, procedures are typically required to assist in enforcing the  
22 copyright. For example, industry has utilized copy protection techniques wherein these  
23 techniques prohibit unauthorized reproduction of protected material, but do not provide  
24 additional legal protection (e.g., a contract or license) to enhance the copyright owners'  
25 enforcement of their rights. However, the existence of a license does not guarantee

1 absolute protection since certain licenses, such as shrink wrap licenses (i.e., licenses  
2 printed on packaging or displayed by software), may be unenforceable due to the fact that  
3 the license is often ignored and not read by parties utilizing the protected material.  
4 Therefore, the present invention is directed toward providing enhanced protection of a web  
5 site or other work in computer readable form against unauthorized reproductions. In  
6 particular, the present invention permits only licensed end-users to access protected web  
7 site material, automatically presents licensing terms to an unlicensed end-user and grants  
8 a license to the unlicensed end-user upon the unlicensed end-user's acceptance of the  
9 licensing terms. Further, the present invention provides a copying utility to licensed end-  
10 users for selective reproduction of protected web site material. The copying utility  
11 functions in tandem with web site protection utilities as described below to ensure that only  
12 appropriate web site material is accessed by licensed end-users, thereby protecting a web  
13 site from unauthorized or unlicensed access and/or reproductions.

#### 14 OBJECTS AND SUMMARY OF THE INVENTION

15 Accordingly, it is an object of the present invention to selectively protect  
16 components of a web site or other work in computer readable form from unauthorized  
17 access and/or reproduction.

18 It is another object of the present invention to selectively grant licenses for  
19 authorized access and/or reproduction of protected components of a web site or other work  
20 in computer readable form.

21 Yet another object of the present invention is to ensure comprehension and  
22 acceptance of license agreement terms by unlicensed end-users such that licenses may be



1 granted to authorize the unlicensed end-users to access and/or reproduce protected  
2 components of a web site or other work in computer readable form.

3 The aforesaid objects are achieved individually and in combination, and it is not  
4 intended that the present invention be construed as requiring two or more of the objects to  
5 be combined unless expressly required by the claims attached hereto.

6 According to the present invention, a copy protection system selectively protects  
7 components of a web site or other work in computer readable form by limiting access  
8 and/or reproduction of protected components to licensed or authorized end-users.  
9 Specifically, the copy protection system includes a copy protection system server (e.g., a  
10 computer system that services client requests) having site examination server software and  
11 licensing software, and end-user computer systems each associated with a corresponding  
12 end-user. The copy protection system server, via site examination server software,  
13 identifies web site components and provides protection to identified web site components  
14 selected by a web site owner, while licensing software enables the copy protection system  
15 server to grant licenses that authorize end-users to access and/or reproduce web site  
16 components protected by the copy protection system. A licensed end-user may download  
17 site copying software to an associated end-user computer system from the copy protection  
18 system server wherein the end-user computer system, via site copying software, interacts  
19 with the copy protection system server to enable the licensed end-user to access and/or  
20 reproduce protected web site components.

21 Initially, the web site owner enters information relating to a web site the owner  
22 desires to protect (e.g., the uniform resource locator (URL) of the web site) into a copy  
23 protection system web site residing on the copy protection system server. The information  
24 relating to the owner web site may be entered into the copy protection system web site via

1 an internet browser residing on a web site owner computer system. The copy protection  
2 system server subsequently retrieves files associated with the owner web site based on the  
3 entered information and examines that web site to ascertain the web site structure and to  
4 identify individual web site components. The web site owner, via the copy protection  
5 system web site and server, selects identified web site components for copy protection and  
6 designates a level of protection desired for each selected web site component. Special tags  
7 or codes are inserted by the copy protection system server within web site files associated  
8 with the owner web site to indicate the web site components selected for protection. A  
9 permission table is constructed for each web site protected by the copy protection system  
10 to store the protection status of web site components and authorized access information  
11 (e.g., codes indicating whether or not an end-user possesses a license). The permission  
12 table is utilized by the copy protection system to determine whether or not an end-user  
13 possesses a license authorizing the end-user to access and/or reproduce a protected web  
14 site.

15 In response to an attempt by an unlicensed end-user to access a protected web site,  
16 the unlicensed end-user is linked (i.e., transferred) to the copy protection system web site  
17 wherein the unlicensed end-user may obtain a license for authorized access and/or  
18 reproduction of protected web site components. Specifically, the copy protection system  
19 server displays licensing agreement terms to the unlicensed end-user wherein clarification  
20 pages relating to and explaining the license agreement terms may further be displayed in  
21 response to an indication that the unlicensed end-user does not understand a displayed  
22 licensing agreement term. Subsequent to reviewing the license agreement terms and/or  
23 associated clarification pages, the unlicensed end-user must pass an on-line test or quiz  
24 administered by the copy protection system server in order to obtain the license. The copy  
25 protection system server examines test answers and grants the license to the unlicensed

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1 end-user in response to a correct answer for each test question. However, if test questions  
2 are answered incorrectly, the copy protection system server displays clarification pages for  
3 licensing agreement terms associated with each incorrectly answered test question. After  
4 the unlicensed end-user reviews the license agreement terms and clarification pages  
5 relating to incorrectly answered test questions, a modified on-line test or quiz is  
6 administered to the unlicensed end-user by the copy protection system server. The  
7 unlicensed end-user must pass the modified test by correctly answering each test question  
8 in order to obtain the license. Alternatively, the test or quiz may be administered via fax,  
9 telephone, mail or in any other suitable manner wherein test answers may be graded by an  
10 external device (e.g., character or other type of reader).

11           Upon granting a license to an unlicensed end-user, the copy protection system  
12 server modifies or places a special code within a cookie file (i.e, a file containing end-user  
13 information associated with an end-user internet browser) associated with the end-user to  
14 indicate that the end-user possesses a license. Further, site copying software may be  
15 downloaded by a licensed end-user to an associated end-user computer system from the  
16 copy protection system server to enable the end-user computer system to access and/or  
17 reproduce protected web site components. The copy protection system, via site copying  
18 software and site examination server software, verifies the information contained within  
19 the end-user cookie file against the information contained within the permission table  
20 associated with the protected web site to enable the licensed end-user to access and/or  
21 reproduce protected web site components in accordance with access privileges granted to  
22 the end-user by the license. If the end-user does not obtain a license, the copy protection  
23 system enables the unlicensed end-user to access only unprotected web site components.  
24 Thus, the copy protection system enables web site owners to selectively determine web site

1 components to be accessed and/or reproduced, thereby preventing unauthorized  
2 reproduction of those web site components.

3 The above and still further objects, features and advantages of the present invention  
4 will become apparent upon consideration of the following detailed description of a specific  
5 embodiment thereof, particularly when taken in conjunction with the accompanying  
6 drawings wherein like reference numerals in the various figures are utilized to designate  
7 like components.

#### 8 **BRIEF DESCRIPTION OF THE DRAWINGS**

9 Fig. 1 is a view in perspective of an exemplary computer system employed by the  
10 present invention.

11 Fig. 2 is a functional block diagram of protected web sites, permission tables and  
12 site copying software illustrating the manner in which permission tables are utilized to  
13 determine end-user access rights for protected web site material according to the present  
14 invention.

15 Fig. 3 is a block diagram of TCP/IP protocol layers.

16 Fig. 4 is a block diagram of an exemplary hierarchical structure of a web site.

17 Fig. 5 is an exemplary HTML file containing tags (i.e., web site formatting  
18 instructions) for generating a web site page.

19 Figs. 6 - 10 comprise a procedural flow chart illustrating the manner in which the  
20 copy protection computer system grants licenses to end-users and enables only licensed  
21 end-users to access protected web site components according to the present invention.

1            Fig. 11 is a system flow chart illustrating the manner in which the copy protection  
2 computer system determines that an end-user is authorized to access protected web sites  
3 according to the present invention.

4            Fig. 12 is a flow diagram illustrating the manner in which the copy protection  
5 computer system verifies end-user understanding of license terms before granting a license  
6 according to the present invention.

### 7            **DESCRIPTION OF THE PREFERRED EMBODIMENTS**

8            An exemplary computer system employed by the present invention for  
9 implementing web site copy protection is illustrated in Fig. 1. Specifically, computer  
10 system 61 is a conventional IBM-compatible or other type of personal computer preferably  
11 equipped with a monitor 63, base 65 (i.e., including the processor, memories, and internal  
12 or external communication devices or modems), keyboard 69 and mouse 67. The copy  
13 protection system (CPS) typically includes a plurality of computer systems 61 (e.g., a copy  
14 protection system server or a third party server, a web site owner computer system and an  
15 end-user computer system), each computer system including a different portion of copy  
16 protection software. Specifically, the copy protection system utilizes software that includes  
17 independent but related components, namely site examination server software, site copying  
18 software and licensing software. The site examination server software preferably resides  
19 on the copy protection system server (e.g., a computer system that services client requests)  
20 and ascertains the protected web site structure, while site copying software is typically  
21 downloaded from the copy protection system server onto an end-user computer system to  
22 facilitate selective copying of protected web site material as described below. The  
23 licensing software typically resides on the copy protection system server and grants end-

1 users licenses to access protected web site material as described below. Alternatively, site  
2 examination server software may reside on a computer system server of a third party  
3 possessing a license for site examination server software, or on a web site owner computer  
4 system (i.e., a client version of the site examination server software residing on the web  
5 site owner computer system). The site copying software enables selective reproduction of  
6 web site material and works in conjunction with the site examination server software  
7 similar in relation to a client-server application (i.e., an application where a computer  
8 system or server processes requests from several client or end-user computer systems).  
9 The site copying software is designed to function as a helper application or "plug-in" (i.e.,  
10 software that extends the basic features of a software package and functions as though it  
11 is part of that package) to internet browsers, such as Netscape, Mosaic, Internet Explorer  
12 or other browser. However, the site copying software may also be a stand-alone program,  
13 or software developed by third parties having a license to develop such software. The site  
14 examination server software examines a web site and constructs a permission table to  
15 define access schemes for web site components based on web site owner preferences. Each  
16 protected web site is processed by the site examination server software to construct  
17 individual permission tables for use by the site copying software as illustrated in Fig. 2.  
18 The site copying software may be in the form of a stand-alone program 96, a "plug-in" 97  
19 to an internet browser, or a third party copying utility 98. Specifically, the site examination  
20 server software constructs individual permission tables 95 for each protected web site 90,  
21 92, 94. Each permission table typically includes information relating to end-users licensed  
22 for a respective web site and the protection afforded to the respective web site components.  
23 When an end-user visits a protected web site 90, 92, 94 and desires local copies of web  
24 site material, the site copying software 96 (e.g., a stand-alone version), 97 (e.g., a plug-in

1 version), or 98 (e.g., third party software) resident on the end-user computer system utilizes  
2 permission tables 95 to determine end-user access rights and corresponding web site  
3 components to copy to the end-user computer system based on the license and protection  
4 information contained in the table. When the end-user does not possess a license,  
5 permission tables 95 either permit access to only unprotected web site components, or  
6 totally deny access to the web site when all web site components are protected.

7 Each computer system may utilize any of the major platforms or operating systems,  
8 such as Windows, Macintosh, Unix or OS2. Further, the computer systems containing the  
9 site examination server software (e.g., the copy protection system server or third party  
10 server, or the web site owner computer system) and licensing software (e.g., the copy  
11 protection system server) preferably include at a minimum an Intel 80486 or compatible  
12 processor, eight megabytes of RAM, and sufficient disk storage (e.g., hard drive) to store  
13 at least ten megabytes of data and web browser software. The computer system containing  
14 the site copying software (e.g., the end-user computer system) is substantially similar to  
15 the computer system containing the site examining server software and licensing software  
16 described above except that the computer system containing the site copying software  
17 requires sufficient disk storage (i.e., hard drive) to store at least one megabyte of data and  
18 web browser software. Moreover, the end-user of the computer system containing the site  
19 copying software controls the allocation of disk storage used for local copies of protected  
20 web site material.

21 The copy protection system assists web site owners in protecting their web sites  
22 from unauthorized reproduction. The main system concept is to enable an end-user to  
23 locally reproduce web site material in a manner that is satisfactory to the web site owner.

24 The copy protection system provides a special web site copying utility (i.e., the site

1 copying software described above) to the end-user for enabling the end-user to produce  
2 legitimate copies of web site material after the end-user agrees to be bound by a system  
3 generated license. The use of other copying facilities is generally outside the scope of the  
4 license and is prohibited unless specifically approved by the copy protection system  
5 provider. The following steps outline the manner in which web site material is protected.

6 1. Material on the web site is protected by copyright (i.e., upon creation of the  
7 material and preferably registered with the appropriate authority (e.g., the  
8 Copyright Office)).

9 2. A web site owner enters a web site into the copy protection system.

10 3. The web site is modified by the copy protection system (i.e., via the site  
11 examination server software described above) to permit web site access by  
12 authorized end-users.

13 4. An end-user attempts to access the protected web site.

14 4.1 The end-user is informed by the copy protection system (i.e., via the  
15 licensing software described above) of the terms and conditions for  
16 accessing the site and the fact that site access includes the use of  
17 copyrighted copying software (i.e., the site copying software described  
18 above) registered with the appropriate authority (e.g., the Copyright  
19 Office).

20 4.2 The end-user agrees to the terms and conditions of web site access  
21 and indicates acceptance of the terms either on-line, or by telephone, fax or  
22 mail.

23 4.3 The end-user downloads free copying software (e.g., the site  
24 copying software described above) to the end-user computer system.



1                   4.4.    The end-user accesses web site information.

2                   5.    An unauthorized end-user reproduces protected web site material.

3                   5.1    The unauthorized end-user is discovered.

4                   5.2    The unauthorized end-user is informed of the violation (e.g.,  
5                   copyright violation for reproducing copyrighted material).

6                   5.3    The unauthorized end-user is informed of the terms and conditions  
7                   for legitimate reproduction and use of the protected web site material.

8                   5.3.1   The unauthorized end-user agrees to the terms and  
9                   conditions for legitimate reproduction and use of the protected  
10                  material.

11                  5.3.2   The unauthorized end-user does not agree to the terms and  
12                  conditions for legitimate reproduction and use of the protected  
13                  material, and legal remedies are pursued.

14                  Briefly, the Web is a Client-Server service (i.e., a service wherein a computer  
15                  system or server processes requests from several client or end-user computers) that  
16                  executes at the top of the Transmission Control/Internet protocol (TCP/IP) layers 100 as  
17                  illustrated in Fig. 3. The protocol layers dictate the manner in which computers  
18                  communicate with each other as described below. The TCP/IP layers are less complex  
19                  than the standard IOS model (i.e., another standard layered protocol) and have become the  
20                  worldwide standard for communications among different computer systems. Specifically,  
21                  the Internet Protocol, Datalink, and Physical layers 66, 68, 70 are associated with the  
22                  physical transfer of data across different media, such as modem, dedicated T1 (i.e., a  
23                  communication scheme for digital transmission) or LAN (i.e., local area network), and the  
24                  manner in which the different media handshake or communicate. Transport layer 64

1 includes a Hypertext Transport Protocol (HTTP) that enables the Web to request and send  
2 data from one computer to another, while Application level 62 includes a web browser  
3 (i.e., software that enables an end-user to traverse the Web), such as Netscape, Mosaic,  
4 Internet Explorer or other browser, residing on the client (i.e., end-user) system and a web  
5 server (i.e., software that enables the server to process client requests) residing on the  
6 server system. An end-user at a client system typically enters an internet address in the  
7 appropriate field on a web browser window to request or visit a particular internet web site.  
8 The entered address usually contains the prefix "http" and is forwarded to an internet  
9 service, namely Domain Name Service (DNS), wherein the service stores the computer  
10 address of the computer, typically a server, containing the requested site. The request is  
11 then sent to the server residing at the computer address and containing the requested site  
12 wherein the server downloads the site to the end-user computer via the Internet. The site  
13 is then displayed on the end-user computer screen using the client web browser.

14 The structure of a web site is based on the standard tree structure utilized by most  
15 major and conventional computer operating systems. A typical hierarchical structure 72  
16 utilized in conventional computer operating systems and demonstrating the manner in  
17 which a majority of web sites are stored within those operating systems is illustrated in Fig.  
18 4. A simple web site can consist of a single file, but generally a web site contains many  
19 files. Specifically, structure 72 includes a top level or root node 74 having subordinate  
20 nodes 76 (web site), 78 (programs) and 80 (E-mail (i.e., electronic mail)). Programs node  
21 78 includes programs (e.g., common gateway interface (CGI) scripts that reside on the  
22 server and are initiated by the web browser via user input) utilized by the web site to  
23 perform various functions, such as animation, while E-mail node 80 typically contains  
24 information relating to the transmission and reception of electronic mail. Web site node

76 typically includes a subordinate node pertaining to a home page 82 with links to subsequent nodes or pages of information, such as company background 84, products 86 and order forms 88. These links are known as Hyperlinks and are a powerful utility of the Web enabling transference to various web pages. The links also enable return from company background, products, and order form pages 84, 86, 88 to the home page 82 (i.e., commonly referred to as the index since the home page enables transference to particular locations in the web site, such as the company background, products and order form pages) such that an end-user can easily restart traversal of the web site structure. Hyperlinks are not limited to transference among locations within one's own site, but can transfer an end-user to any other page residing on the Web. Hyperlinks are similar to references and/or footnotes encountered in written works except that the reference is available without having to leave the main body of the work. In terms of the Internet, the web is the main body with web pages being references and/or footnotes. Further, a web site may have Hyperlinks to other internet services, such as E-mail and File Transfer Protocol (FTP). FTP is typically utilized to transfer files and download software. In addition, a web site may include forms where an end-user enters information on a form and the web site interacts with the end-user via a CGI script described above or other programming protocols.

The web site files are written in accordance with a particular syntax that is central to the Web, namely the Hypertext Markup Language (HTML). HTML is a language constructed of text that has delimiter codes incorporated into the language to represent a procedural call. These procedural calls indicate the type of processing and/or arrangement for text, graphic and related objects that form the web site. In particular, HTML utilizes less than (i.e., "<") and greater than (i.e., ">") symbols as code delimiters with HTML instructions or tags placed between these two symbols (e.g., <TITLE>). A small exemplary

1 HTML file showing different types of tags that indicate whether or not text is body matter,  
2 a heading or a title is illustrated in Fig. 5. Other tags include links, and calls to graphics,  
3 sound files and programs (e.g., CGI scripts). The tags enable the copy protection system  
4 to identify various objects within a web site that may require protection.

5 Web sites typically include a plurality of various media types that are generally  
6 each individually eligible for copyright registration. These media types commonly take the  
7 form of works listed, by way of example only, in Table II below. For example, graphic  
8 works are considered to be pictorial with copyright registration generally being  
9 accomplished via form VA, while text and tables are considered to be literary material with  
10 copyright registration generally being obtained via form TX. The various types of works  
11 shown in Table II are typically contained in files preferably having the designated file  
12 extensions (i.e., NA indicates that there is no designated extension or an extension is not  
13 applicable). A web site typically includes software that can process the files to attain the  
14 desired effect (e.g., sound, picture, etc.). The various web site works described below may  
15 each have their own separate copyright registration dependent upon their commercial  
16 value.

TABLE II

TYPE OF WORK	NAME	FILE EXTENSION	COPYRIGHT FORM REQUIRED FOR FILING
Text, Tables	HTML	htm or html	TX
Graphic	GIF	gif	VA
Photograph	JPEG	jpg or jpeg	VA
Audio	Wave	wav	SR
Digital Music	Midi	mid	PA
Audio Streaming	Real Audio	NA	PA
Multimedia	Shockwave	NA	PA
Program	Java	java	TX
Program (Forms)	CGI	cgi	TX
FTP (File Transfer)	NA	NA	TX
Computer Animation	NA	NA	VA

The copy protection system basically includes two phases that are performed in order to protect a web site. The first phase includes incorporating the web site into the copy protection system and providing site copying software to licensed end-users for facilitating reproduction of protected web site material. The second phase of the copy protection system enables only licensed end-users to access protected web site material. Initially, a web site for which protection is desired is configured in a certain manner to restrict access to particular web site components in accordance with web site owner preferences. Specifically, the copy protection system (i.e., via the site examination server software described above) performs an initial examination of the web site and identifies various web site components by media types or objects generally contained in Table II. A subsequent inquiry is performed for each component to obtain from the web site owner whether or not the component is to be protected, and the level of protection desired (e.g.,

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1 the component level or distance from the root node within the web site hierarchical  
2 structure requiring protection wherein subsequent levels of web site components coupled  
3 to the higher level protected component are also protected). Generally, the web site owner  
4 visits the copy protection system web site via a web browser residing on the owner  
5 computer system wherein the owner is prompted for the address of the web site requiring  
6 protection. The owner subsequently enters the Uniform Resource Locator (URL, i.e., the  
7 web site internet address) for the web site into a dialog box or form to start the copy  
8 protection process. The site examination server software retrieves and examines the whole  
9 web site structure 72 (Fig. 4) including tags found in web site HTML files (Fig. 5) to  
10 identify various web site components. The HTML tags may indicate media types of, and  
11 usually indicate files containing, web site components (e.g., image files, sound files, etc.).  
12 The file extensions of web site media files may also indicate media types as described  
13 above, by way of example only, in Table II. Subsequently, a series of questions is  
14 presented to the web site owner in a dialog box, form or line prompts relating to inclusion  
15 and exclusion of web site components for copy protection. For example, certain graphics  
16 of a utility nature should be ignored and automatically excluded from copy protection by  
17 the system, such as bullets for bulleted lists and simple lines that are used as dividers on  
18 the screen. These utility graphics can be excluded based on either their size (e.g., number  
19 of bytes and/or length and width) and/or title. The site examination server software  
20 typically sets a protection flag (i.e., "Protection Tag" element of an HTML object data  
21 structure described below) in order to indicate web site components that are to be protected  
22 and the level of protection desired, while setting an ignore flag (i.e., "Ignore Flag" element  
23 of an HTML object data structure described below) to bypass web site components that are  
24 to be ignored. Further, the site copying software described above is made available for

1 downloading to end-user computer systems to enable end-users consenting to a license to  
2 copy protected web site material.

3 Once a web site is configured and the copying software is available for  
4 downloading as described above, end-users may attempt to visit a protected site. Upon  
5 visiting a protected site, the end-user is presented with terms and conditions for accessing  
6 protected web site material and using the site copying software. The end-user must agree  
7 to the terms and conditions prior to accessing the web site. However, one of the major  
8 problems with licensing software is ascertaining the end-user's understanding of the terms  
9 and conditions of the license. The copy protection system, via the licensing software,  
10 assists the end-user with comprehending the license terms by selectively displaying major  
11 license components with a clarifying explanation, and testing the end-user on license  
12 subject matter. The end-user endures this licensing procedure since each protected web  
13 site is licensed by substantially the same terms, thereby requiring the procedure to only be  
14 performed once to visit any protected site. The goal of the copy protection system is to  
15 ensure that end-users carefully read the license and understand the license terms. The  
16 terms basically include the right to use the site copying software when the end-user desires  
17 a local copy of web site material, however, the license terms must be upheld whether or  
18 not the end-user uses the site copying software to produce local copies. When the end-user  
19 desires local copies of protected web site material at a later date, the end-user simply  
20 returns to a protected web site to download the site copying software as described below.

21  
22 The copy protection system (i.e., via the site examination server software) utilizes  
23 an overall data structure for the web site including a master list of HTML tags or objects  
24 encountered during examination of web site files. Each HTML object includes a record

1 having a component indicating whether or not that object is to be protected and the level  
2 of protection desired (i.e., the "Protection Tag" element). The HTML object further  
3 includes the object media type and other related information (e.g., file location, ignore flag,  
4 creation date, modification date, ownership, links, etc.). The HTML objects essentially  
5 decompose a web site into its smaller components since each web site component may  
6 require a different degree of protection, or no protection at all. Further, since large  
7 protected web site components may usually be decomposed into protected and unprotected  
8 web pages and/or files, a web site component that is an element of a larger protected web  
9 site component may be protected under the larger component protection and not need  
10 individual protection. For example, a newspaper may offer a top level headline web page  
11 for free viewing, however, detailed stories may only be available to end-users that  
12 subscribe to the newspaper. In order for the end-user to maintain local copies of stories on  
13 the end-user computer system, the end-user requires specialized software, similar to the site  
14 copying software described above, to copy stories to the end-user computer system.

15 Once an end-user is authorized to access protected web sites, the end-user computer  
16 system maintains a small End-User object (i.e., a small record) within a cookie file  
17 associated with a web browser on the end-user computer system. The cookie file is  
18 typically a simple ASCII file associated with internet browsers that contains end-user  
19 information (i.e., an End-User object described below having the user name and a code)  
20 wherein the file can be read or written by the copy protection system software (e.g., the site  
21 examination server software and the licensing software as described  
22 below) when the end-user attempts to access a protected site. Typically, the cookie file is  
23 examined when an end-user accesses a protected site to determine whether or not the end-  
24 user is entitled to access protected web site material. If the code is not present within the



1 cookie file, the user is directed to obtain a copy protection system license in order to  
2 access protected web site material. The code is basically an encrypted key that is  
3 associated with the user name contained within the permission tables described above.

4 In Object Oriented Programming (OOP), the data and data processing are stored  
5 as a single set of computer instructions. In other words, the data type and processing  
6 instructions are merged. This feature enables creation of Client-Server applications, such  
7 as the Web. The Gane/Sarson web site data structure outline for the web site, HTML and  
8 End-User objects is illustrated below.

9 Web Site Object

10 HTML Object List

11 HTML Objects

12 File Location

13 Ignore Flag

14 Types

15 Text

16 Artwork

17 Photograph

18 Database

19 Link

20 Program

21 Java Applet

22 Xactive

23 Creation Date

24 Modification Date

25 Ownership

26 Links (Internal)

27 To

28 From

29 Protection Tag

30 Yes/No

31 Level

32 End-User Object/Cookie File on End-User's System

33 Name

34 Code (Encrypted Key)

35 A procedural flow chart showing the operation of, and the manner in which a web  
36 site is protected by, the copy protection system is illustrated in Figs. 6 - 10. Specifically,  
37 a web site owner initially determines at step 1 that information on the owner's web site

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1 requires protection. The owner visits the copy protection system (CPS) web site at step 2  
2 via the owner computer system web browser wherein the owner is presented (e.g., via  
3 licensing software resident on the copy protection system server containing the system web  
4 site) with terms for web site protection and conditions under which the copy protection  
5 system grants licenses to end-users for accessing a protected web site. When the owner  
6 agrees to the protection terms and end-user licensing conditions at step 3, the site  
7 examination server software loads the owner web site files at step 4, and examines the files  
8 at step 5 to decompose the web site into its smaller components or objects based on HTML  
9 tags within web site files as described above. An object table containing entries for web  
10 site objects is constructed by the site examination server software at step 6 from the web  
11 site examination, and preferably stored in computer memory or a commercially available  
12 or conventional database. The site examination server software may reside on the copy  
13 protection system server, a third party server containing the owner web site and licensing  
14 the site examination server software, or on the owner computer system in a client version.  
15 It is to be understood that the references to software performing functions as used herein  
16 actually refer to a computer system performing the functions under control of that software.

17 Once web site objects are identified, the site examination server software presents  
18 the owner with a series of inquiries to ascertain web site objects to be automatically  
19 excluded from protection or ignored as described above. The web site objects are  
20 examined via the site examination server software and each object that has not been  
21 excluded (i.e., the "Ignore Flag" element of the HTML object data structure described  
22 above is not set) is presented to the owner in an object loop (i.e., a series of computer  
23 instructions that are repeated for each object) to ascertain whether or not protection for that  
24 object is desired. Specifically, the object loop determines at step 7 whether or not each  
25 object has been processed. When objects have not been processed, the next object is

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1       retrieved and the owner determines at step 8 whether or not the retrieved object requires  
2       protection. If the owner enters information (e.g., via keyboard, mouse or any other  
3       conventional input device) indicating that the object does not require protection, the  
4       protection flag (i.e., the "Protection Tag" element of the HTML object data structure  
5       described above) is not set as indicated at step 9. However, if the owner enters information  
6       indicating that the object requires protection, the owner subsequently enters the desired  
7       protection level (e.g., the object level or distance from the root node within the web site  
8       hierarchical structure requiring protection wherein subsequent levels of web site objects  
9       coupled to the higher level protected object are also protected) at step 10, and the  
10      protection flag (i.e., the "Protection Tag" element of the HTML object data structure  
11      described above) is set to indicate the level of protection required at step 11. The web site  
12      owner is able to protect different portions of the web site based on the web site hierarchical  
13      structure (Fig. 4) and the level of protection indicated for a particular web site object.  
14      After the protection status of the object has been designated, the next object is retrieved for  
15      processing at step 7.

16           Referring to Fig. 7, when the owner has entered protection preferences for each web  
17      site object, an access (i.e., permission) table indicating the protection status of each web  
18      site object is constructed by site examination server software at step 12, and preferably  
19      stored in a computer memory or commercially available or conventional database. The  
20      web site objects are examined in a second object loop within the site examination server  
21      software in order to inspect the web site objects and modify corresponding web site files  
22      (e.g., HTML files) associated with each protected object. Specifically, the second object  
23      loop determines at step 13 whether or not each web site object has been processed. When  
24      web site objects have not been processed, the next web site object is retrieved and its

1 protection flag (i.e., the "Protection Tag" element of the HTML object data structure  
2 described above) examined at step 14 to determine whether or not the object is to be  
3 protected. If the object requires protection, the corresponding portion of web site HTML  
4 files are modified by site examination server software at step 16 to enable limited access  
5 to that web site object. In particular, the web site is modified by embedding a special tag  
6 or code within web site HTML files associated with the protected web site object. The tag  
7 may comprise any characters or symbols that do not conflict with existing HTML tags or  
8 commands. The special tag indicates to site examination server software and site copying  
9 software particular objects that are protected, thereby controlling access to protected web  
10 site components. The special tags basically identify web site components within HTML  
11 web site files that should not be sent to unlicensed end-user computer systems for display  
12 on end-user web browsers or storage in the end-user computer system. If the web site  
13 object is not to be protected, web site files are not modified as indicated at step 15. After  
14 the object is processed, the next object is retrieved for processing at step 13.

15 Upon modifying web site files in accordance with web site object protection  
16 designations, the web site may handle access requests by end-users at step 43. Specifically,  
17 when an end-user visits a protected site via an end-user web browser, the site examination  
18 server software determines at step 44 whether or not the end-user has previously visited  
19 a protected site and obtained a license. This is automatically determined by examining the  
20 end-user cookie file in the end-user web browser as illustrated in Fig. 11. The cookie file  
21 includes the end-user name and code as described above wherein the code indicates the  
22 presence of an end-user license. Specifically, the end-user visits a protected web site 73  
23 by requesting access via a web browser 77 residing on the end-user computer system. By  
24 way of example only, web site 73 resides on a third party server containing a licensed copy

1 of site examination server software. The site examination server software examines end-  
2 user cookie file 79 and special tags within HTML web site files being accessed.  
3 Subsequently, the site examination server software determines end-user access rights by  
4 inspecting the access (i.e., permission) table associated with web site 73 in a local end-user  
5 database 81 for the encryption key or code contained in the cookie file wherein the  
6 existence of the key in the database indicates the presence of a license. The site  
7 examination server software may alternatively consult the access table for web site 73 in  
8 end-user database 83 residing on the copy protection system server containing a copy  
9 protection system web site 75. However, since database 81 is local to the server containing  
10 site examination server software and web site 73, database 81 provides a faster overall  
11 access time than database 83. The databases may be implemented by any conventional or  
12 commercially available databases. The presence of an end-user license may also be  
13 indicated in various other manners, such as by use of a password, end-user name,  
14 information in a local file or other incorporated feature indicating the presence of a license.  
15 Further, site examination server software and web site 73 may reside on the copy  
16 protection system server, or on the owner computer system and function in substantially  
17 the same manner described above to determine end-user access rights for protected web  
18 site material.

19 Referring to Fig. 8, when an end-user visits a protected web site for the first time  
20 at step 17, the end-user is "linked" (i.e., transferred) from the protected web site to the copy  
21 protection system web site at step 21 where licensing software resident on the copy  
22 protection system server presents the end-user with licensing terms for access to the  
23 protected site at step 23. After viewing licensing terms, the end-user determines at step 24  
24 the manner in which to further view and execute the proposed license agreement. The end-

1 user may execute the license as described below either on-line at step 18, or via fax, mail  
2 or telephone at steps 20, 22, 60, respectively.

3 The copy protection system obviates the problems of end-user comprehension of  
4 licenses described above via on-line execution at step 18. Specifically, each license section  
5 is typically presented to the end-user on a web page or form one section at a time. Once  
6 each license section has been presented, a license agreement summary is displayed  
7 emphasizing major license terms. Subsequently, a series of multiple choice questions  
8 relating to subject matter of the license is displayed for the end-user to answer. The  
9 licensing process should endure for five to ten minutes and is illustrated in Fig. 12.  
10 Specifically, an overview page 45 is initially displayed and includes the procedure for  
11 responding to questions, the complete agreement and a warning that failure to follow the  
12 procedure may cause the end-user to restart the licensing process. The warning further  
13 states that questions relating to main points of the license must be answered correctly in  
14 order to obtain a license. After the overview page, a first license section 46 is displayed  
15 for review. The end-user is prompted as to whether or not the end-user understands that  
16 license section. If the end-user enters information indicating that the end-user does not  
17 understand that section, a clarify page 50 is displayed containing supplemental information  
18 about the license section. Subsequent license sections 47, 48, 49, and corresponding  
19 clarification pages 51, 52, 53 are respectively individually displayed for review by the end-  
20 user in substantially the same manner described above for license section 46 and clarify  
21 page 50. After each license section has been reviewed by the end-user, a summary page  
22 54 is displayed wherein the full license is summarized. A multiple choice test 55 is  
23 administered on-line for the end-user relating to subject matter of the license. The end-  
24 user's answers are entered and examined for correctness at step 56, wherein a relevant

1 clarification page 50, 51, 52, 53 corresponding to the license section that pertains to an  
2 incorrectly answered question is respectively displayed. The end-user reviews license  
3 sections pertaining to incorrectly answered questions and attempts to answer new questions  
4 presented in a modified test at step 55 in substantially the same manner described above.  
5 If the end-user answers the original or new questions correctly, a license is issued at step  
6 57 and the end-user is permitted to access and download the site copying software. A new  
7 test is generated for each end-user to ensure that each end-user has an individual  
8 understanding of the agreement. The license may contain any number of sections with  
9 corresponding clarification pages and may be granted in substantially the same manner  
10 described above. When the end-user is uncertain about the licensing procedure, the end-  
11 user can contact the copy protection system provider by electronic mail, fax, telephone or  
12 mail. Further, each page displaying a license section includes an electronic mail, chat (i.e.,  
13 on-line conversation), or audio visual (AV) internet option to facilitate contacting the copy  
14 protection system provider.

15 Referring back to Fig. 8, similar license approval methods can be accomplished via  
16 fax at step 20. In particular, the test can be requested from a fax back telephone number  
17 and printed at an end-user location. The test includes multiple choice questions wherein  
18 the end-user answers the questions on a form received with the test. The form containing  
19 end-user answers is returned to the copy protection system center via fax where the test is  
20 automatically graded using bar code and optical character recognition (OCR) scanners in  
21 conjunction with a computer system containing bar code and OCR software. Alternatively,  
22 regular ground mail may be utilized at step 22 to correspond with the copy protection  
23 system center. The copy protection system center generates a new test for each end-user  
24 to ensure individual end-user understanding of the license.

Another technique that may be implemented to execute the license utilizes telephone coding on touch tone telephones at step 60. Specifically, the end-user obtains the test and text about the license in preprinted form, wherein the test is customized such that the end-user cannot copy answers from another source. The end-user calls the copy protection system center and is prompted to enter, via telephone keypad, a number corresponding to a type of license desired. The license type and serial number is typically present on the copy protection system computer screen, and may be further ascertained via a screen printout. The serial number of the desired license is entered via the telephone keypad, and the end-user is prompted to answer questions from the test. The end-user enters answers to test questions via the telephone keypad wherein the test is automatically graded as described above via a computer system having a conventional device interpreting tones (i.e., digits) entered by the end-user. The license is granted upon correctly answering all of the questions wherein the end-user is given an access code for obviating the licensing procedure and accessing protected web site material. This technique may alternatively be utilized for licensing software and/or other equipment, registering equipment with a manufacturer, or for licenses that are part of an equipment purchase agreement, such as modems, mass storage devices or computer systems. Further, this technique may be employed when the end-user is totally off-line and a license is required to access or download software on-line, or to access equipment.

Referring to Fig. 9, when the end-user enters information indicating that the end-user does not agree to license terms at step 25, the site examination server software examines the access (i.e., permission) table for the protected web site as described above to uncover protected web site objects (i.e., the "Protection Tag" element of the HTML object data structure is set for protected objects) at step 26. If the access table includes



1 unprotected web site objects, the site examination server software constructs a limited  
2 permission table at step 29 and enables an end-user to access unprotected objects at step  
3 31. However, if all web site objects within the access table are protected, then access by  
4 the end-user is forbidden at step 27 and the web site visit is terminated.

5       Upon the end-user entering information indicating that the end-user agrees to  
6 license terms at step 25, the licensing software modifies the end-user cookie file at step 58  
7 (i.e., the file containing end-user information associated with the end-user internet browser)  
8 to contain the end-user object data structure with the end-user access information (i.e.,  
9 name and code) described above. This file is utilized to determine whether or not an end-  
10 user possesses a license as described above. The end-user determines at step 28 whether  
11 or not to obtain local authorized copies of web site material for storage on the end-user  
12 computer system. When the end-user desires to obtain local copies, the end-user  
13 downloads (e.g., the download is typically accomplished by selecting a download function  
14 from a web page) at step 30 the site copying software to the end-user computer system, and  
15 the end-user is permitted to access the protected site at step 32.

16       Upon determining at step 44 (Fig. 7) that the end-user has visited a protected site  
17 (i.e., the cookie file is examined as described above), the end-user determines at step 40  
18 whether or not to obtain local copies of protected web site material. If the end-user desires  
19 local copies of protected web site material and determines at step 41 that the site copying  
20 software is not resident on the end-user computer system, the end-user downloads the site  
21 copying software as described above to the end-user computer system at step 42. After the  
22 site examination server software determines the end-user possesses a license, the end-user  
23 is permitted to access the protected site at step 32. The end-user may automate obtaining  
24 local copies of protected web site material by indicating in the end-user browser that

1 material from a particular web site is to be copied automatically upon visiting that site a  
2 predetermined number of times. The end-user browser is typically supplemented with a  
3 counter that maintains the number of times a site is visited. The end-user sets a variable  
4 within the browser that indicates the number of visits required to automatically copy web  
5 site material from a particular site. When the counter reaches the number of visits  
6 indicated by the variable, the browser initiates the site copying software (e.g., a plug-in,  
7 stand-alone program or third party software) to automatically produce local copies of web  
8 site material. The copies are produced provided that the end-user is authorized or licensed  
9 to make such copies. Alternatively, web site material may be copied upon end-user  
10 request.

11 Referring to Fig. 10, when a protected web site includes File Transfer Protocol  
12 (FTP) services (i.e., services to download data and/or software), the end-user determines  
13 at step 33 whether or not to download available data and/or software from the protected  
14 web site. If the end-user does not desire to download data and/or software at an FTP site,  
15 the visit is terminated at step 39. However, upon the end-user determining to download  
16 data and/or software, the site examination server software reminds the end-user of license  
17 copying terms at step 34. Further, the protected web site may include additional local  
18 terms and conditions for downloading data and/or software, such as terms related to  
19 purchase of files and software. The local terms are typically displayed to the end-user via  
20 software resident at the server containing the site. When no local terms exist at step 35,  
21 the end-user may download data and/or software at step 37 via FTP services, and  
22 subsequently terminate the visit at step 39. When the web site includes additional local  
23 terms, the end-user determines at step 36 whether or not to agree to the additional local  
24 terms. If the end-user enters information indicating that the end-user agrees to additional

1 local terms, data and/or software is downloaded at step 37 via FTP services, and the visit  
2 is terminated at step 39; otherwise data and/or software is not downloaded as indicated at  
3 step 38, and the visit is terminated at step 39.

4 The copy protection software (e.g., the site examination server software, site  
5 copying software and licensing software) is implemented in the 'C' programming language,  
6 however, the software may be developed in any of a number of high or low level  
7 computing languages. Basically, the software includes independent, but related modules.  
8 A first module, namely the site examination server software, examines the web site itself  
9 and constructs a permission table in accordance with the web site owner's designation of  
10 protected web site components as described above. The site examination server software  
11 may reside at the copy protection system server, a third party server (i.e., a a licensed copy  
12 of the software) containing the protected web site, or on the web site owner computer  
13 system (e.g., as a client version of the software). A second module, namely the site  
14 copying software, resides on the end-user computer system and functions in conjunction  
15 with the site examination server software similar in relation to a client-server application.  
16 The site examination server software constructs permission tables that are utilized by the  
17 site copying software to determine end-user access rights to protected web site objects as  
18 described above for Fig. 2. The site copying software may be implemented in various  
19 computer languages, such as 'C', 'C++', or Java. A third module, namely the licensing  
20 software, resides on the copy protection system server and grants licenses to end-users to  
21 access protected web site material as described above.

22 The site examination server software examines the web site to ascertain the web  
23 site structure (Fig. 4) and identify web site components within web site files as described  
24 above. This task can be performed by high level programming languages, such as 'C' or

1 'C++', and other utility languages that are oriented towards system management  
2 input/output tasks (e.g., Perl). Once all components or objects are encountered in a web  
3 site, the site examination server software determines, with owner assistance as described  
4 above, web site objects requiring copy protection. This calls for building a database or data  
5 structure that is well suited for 'C' or 'C++' computer languages. The site examination  
6 server software may utilize a data structure to store protection information and/or  
7 permission tables as described above, or use a database wherein an object oriented  
8 programming language includes calls to the database as part of the object declaration in the  
9 software (i.e., the computer instructions representing the calls are merged with the data or  
10 structure type as described above). Alternatively, since other computer languages have the  
11 ability to make external database calls (e.g., Perl), the site examination server software can  
12 be designed in a manner to function in conjunction with an external database, such as SQL,  
13 to store protection information and/or permission tables. Further, the site examination  
14 server software may be designed in a manner to interface and be initiated from a Java  
15 program since Java is platform independent, includes the capabilities described above, and  
16 is designed specifically for the Internet. It is to be understood that the copy protection  
17 software may be developed in any of the above described or other computer languages by  
18 one of ordinary skill in the art based on the functional description and data structures  
19 disclosed in the specification and flow charts illustrated in the drawings.

20 It will be appreciated that the embodiments described above and illustrated in the  
21 drawings represent only a few of the many ways of implementing a web site copy  
22 protection system and method.

23 The present invention is not to be limited to copy protection of web sites, but may  
24 be utilized for copy protection of various other works, preferably in computer readable

1 form, in substantially the same manner described above. For example, the system may  
2 (e.g., via software) examine computer readable forms of other works (e.g., works  
3 associated with or stored in at least one computer file) and protect those works in  
4 substantially the same manner described above.

5 The present invention may be implemented by an end-user's computer system in  
6 combination with a web site owner computer system or any quantity of server or host  
7 computer systems residing on the web or in communication with the end-user's computer  
8 system. The web site owner, server or host computer systems may perform the web site  
9 processing and licensing as described above, while the end-user may communicate with  
10 the web site owner, server or host computer systems to download and utilize site copying  
11 software through a web browser or other software residing on the end-user computer  
12 system as described above. The end-user essentially visits the protected web site and/or  
13 copy protection system via the web browser on the end-user's computer system or  
14 communicates with the web site owner, server or host computer systems via modem or  
15 other communication device, and initiates access and/or the licensing procedure wherein  
16 access to protected web site components is restricted to licensed or authorized end-users.  
17 The server, host and other computer systems may be implemented by any conventional or  
18 other processing systems having the capacity and storage to execute the copy protection  
19 software (e.g., site examination server software, licensing software and site copying  
20 software). The software (e.g., site examination server software, licensing software and site  
21 copying software) may be implemented in any suitable computer language enabling the  
22 copy protection system to process the web site or other works and facilitate access and/or  
23 reproduction of that web site in substantially the same manner described above.  
24 Information may be entered into the copy protection system via keyboard, mouse, voice

1 recognition, touch screen or any other input device. Further, line prompts, dialog boxes  
2 and forms may be arranged in any fashion and have any layout or configuration. Moreover,  
3 any type of input mechanism may be utilized to retrieve information from an end-user,  
4 such as menus, windows or graphical user interfaces (GUI). The data structures, databases  
5 and tables may store and arrange any information in any manner, and may be implemented  
6 by any data or storage structures or storage devices capable of storing information required  
7 for copy protection.

8 The software logic or algorithms may be arranged in any manner capable of  
9 selectively enabling limited access to protected components of web sites or other works in  
10 computer readable form. The copy protection system may examine the web site or other  
11 works in any fashion capable of determining the structure of the work and the types of  
12 works of the work components. The site copying and other software may be delivered to  
13 an end-user via any suitable medium, such as CD-ROM, diskette, downloaded from the  
14 Internet or a bulletin board (e.g., via carrier signals) or other transfer mechanism. The  
15 software (e.g., site examination server software, licensing software and site copying  
16 software) may be installed and executed on a computer system in any conventional or other  
17 manner (e.g., an install program, copying files, entering an execute command), and may  
18 be implemented to be compatible with any operating system. Further, the permission  
19 tables may be arranged in any fashion and may be implemented by any data or storage  
20 structure or device. Moreover, the code indicating a licensed end-user may be any type of  
21 code or other indication of a license, while the protection level designation and other flags  
22 may be any number, code or other characters capable of indicating the desired level or  
23 status. The license indication may be implemented by storing any indication in any file or  
24 at any memory location, or by any other techniques. In addition, web site or other files

1 containing works may be modified in any manner to indicate protected components, or  
2 separate files, tables or other data storage structures may be utilized to indicate protection  
3 of work components.

4 The license terms and any other information may be displayed to an end-user in any  
5 fashion wherein the license may include any quantity of clauses. The test or quiz may be  
6 administered and graded in any fashion (e.g., automated or manually) wherein the test may  
7 include any type (e.g., true/false, multiple choice, etc.) and any quantity of questions. A  
8 license may be granted by the copy protection system based on achievement of any desired  
9 test score. Further, the copy protection system may enable an end-user to take the test  
10 and/or review license terms in any sequence.

11 From the foregoing description it will be appreciated that the invention makes  
12 available a novel web site copy protection system and method wherein the system  
13 selectively enables access and reproduction of protected web sites or other works in  
14 computer readable form to licensed or authorized end-users.

15 Having described preferred embodiments of a new and improved web site copy  
16 protection system and method, it is believed that other modifications, variations and  
17 changes will be suggested to those skilled in the art in view of the teachings set forth  
18 herein. It is therefore to be understood that all such variations, modifications and changes  
19 are believed to fall within the scope of the present invention as defined by the appended  
20 claims.

**WHAT IS CLAIMED IS:**

1           1. A computer system for protecting a work in computer readable form from  
2           unauthorized access and/or reproduction, said computer system comprising:

3           input means for facilitating user entry of information associated with the work;

4           examination means for retrieving the work in computer readable form based on the  
5           entered information and examining the work to identify individual work components  
6           contained within the work;

7           work selection means for facilitating user selection of identified work components  
8           for protection;

9           licensing means for granting licenses to enable end-users to access and/or reproduce  
10          work components selected for protection;

11          permission means for storing authorized access information and information  
12          associated with a protection status for each work component, wherein the authorized access  
13          information relates to licenses granted by said licensing means; and

14          access means for determining, based on the authorized access information, the  
15          presence of a license granted by said licensing means to an end-user and selectively  
16          permitting that end-user to access and/or reproduce work components in response to said  
17          license determination and the protection status information stored in said permission  
18          means.

1           2. The computer system of claim 1 wherein the work includes a web site.

1           3. The computer system of claim 1 wherein said licensing means includes:

2           license display means for displaying license terms to an end-user;



clarifying means for explaining license terms displayed by said license display means in response to an indication that the end-user does not understand a displayed license term;

test means for administering a test having test questions to the end-user relating to license terms displayed by said license display means; and

license grant means for granting a license to enable the end-user to access and/or reproduce work components selected for protection in response to achieving a passing test score associated with the test.

4. The computer system of claim 3 wherein:

said test means includes:

test question means for administering test questions to an end-user;

answer receiving means for receiving answers to the administered test questions from the end-user;

grading means for determining correctness of the received answers;

answer explaining means for explaining a license term associated with each incorrectly answered test question detected by said grading means;

modified test means for administering a modified test having modified test questions to the end-user relating to license terms in response to the end-user achieving a failing test score associated with the test; and

said license grant means includes:

modified grant means for granting a license to enable the end-user to access and/or reproduce work components selected for protection in response to achieving a passing test score associated with the modified test.

1           5. The computer system of claim 1 wherein:

2           said licensing means includes:

3           code means for associating a code with an end-user in response to said  
4           licensing means granting that end-user a license; and

5           said access means includes:

6           verification means for determining the presence of a license granted by said  
7           licensing means to the end-user by verifying the code associated with the end-user against  
8           the authorized access information within said permission means to enable the end-user to  
9           access and/or reproduce work components selected for protection in response to  
10          verification of the code.

1           6. The computer system of claim 1 wherein said access means includes:

2           licensed access means for permitting the end-user to access and/or reproduce work  
3           components selected for protection in response to said determination that the end-user has  
4           been granted a license by said licensing means; and

5           unlicensed access means for permitting the end-user to access and/or reproduce  
6           only unprotected work components indicated by the protection status information in  
7           response to said determination that the end-user has not been granted a license by said  
8           licensing means.

1           7. A program product apparatus having a computer readable medium with  
2           computer program logic recorded thereon for facilitating protection of a work in computer

3 readable form from unauthorized access and/or reproduction, said program product  
4 apparatus comprising:

5 input means for facilitating user entry of information associated with the work;

6 examination means for retrieving the work in computer readable form based on the  
7 entered information and examining the work to identify individual work components  
8 contained within the work;

9 work selection means for facilitating user selection of identified work components  
10 for protection;

11 licensing means for granting licenses to enable end-users to access and/or reproduce  
12 work components selected for protection;

13 permission means for storing authorized access information and information  
14 associated with a protection status for each work component, wherein the authorized access  
15 information relates to licenses granted by said licensing means; and

16 access means for determining, based on the authorized access information, the  
17 presence of a license granted by said licensing means to an end-user and selectively  
18 permitting that end-user to access and/or reproduce work components in response to said  
19 license determination and the protection status information stored in said permission  
20 means.

1 8. The apparatus of claim 7 wherein the work includes a web site.

1 9. A computer data signal embodied in a carrier wave and having computer  
2 program logic embedded therein for facilitating protection of a work in computer readable  
3 form from unauthorized access and/or reproduction, said computer data signal comprising:

input means for facilitating user entry of information associated with the work;

examination means for retrieving the work in computer readable form based on the entered information and examining the work to identify individual work components contained within the work;

work selection means for facilitating user selection of identified work components for protection;

licensing means for granting licenses to enable end-users to access and/or reproduce work components selected for protection;

permission means for storing authorized access information and information associated with a protection status for each work component, wherein the authorized access information relates to licenses granted by said licensing means; and

access means for determining, based on the authorized access information, the presence of a license granted by said licensing means to an end-user and selectively permitting that end-user to access and/or reproduce work components in response to said license determination and the protection status information stored in said permission means.

10. The computer data signal of claim 9 wherein the work includes a web site.

11. A method for protecting, via a computer system, a work in computer readable form from unauthorized access and/or reproduction, said method comprising the steps of:

- (a) entering information associated with the work into the computer system;
- (b) retrieving the work in computer readable form, via the computer system, based on the entered information;

6 (c) examining the work, via the computer system, to identify individual work  
7 components contained within the work;

8 (d) facilitating user selection of identified work components for protection;

9 (e) granting licenses, via the computer system, to enable end-users to access and/or  
10 reproduce work components selected for protection;

11 (f) storing, via the computer system, authorized access information and  
12 information associated with a protection status for each work component, wherein the  
13 authorized access information relates to granted licenses;

14 (g) determining, via the computer system based on the authorized access  
15 information, the presence of a license granted to an end-user; and

16 (h) selectively permitting the end-user to access and/or reproduce work  
17 components, via the computer system, in response to said license determination and the  
18 protection status information.

1 12. The method of claim 11 wherein the work includes a web site.

1 13. The method of claim 11 wherein step (e) further includes:

2 (e.1) displaying license terms to an end-user;

3 (e.2) explaining license terms displayed to the end user in response to an indication  
4 that the end-user does not understand a displayed license term;

5 (e.3) administering a test having test questions to the end-user relating to license  
6 terms displayed to the end-user; and

(e.4) granting a license to enable the end-user to access and/or reproduce work components selected for protection in response to achieving a passing test score associated with the test.

14. The method of claim 13 wherein:

step (e.3) further includes:

(e.3.1) administering test questions to an end-user;

(e.3.2) receiving answers to the administered test questions from the end-user;

(e.3.3) determining correctness of the received answers;

(e.3.4) explaining a license term associated with each incorrectly answered test question; and

(e.3.5) administering a modified test having modified test questions to the end-user relating to license terms in response to the end-user achieving a failing test score associated with the test; and

step (e.4) further includes:

(e.4.1) granting a license to enable the end-user to access and/or reproduce work components selected for protection in response to achieving a passing test score associated with the modified test.

15. The method of claim 11 wherein:

step (e) further includes:

(e.1) associating a code with an end-user in response to granting that end-user a license; and

step (g) further includes:

(g.1) determining the presence of a license granted to the end-user by verifying the code associated with the end-user against the authorized access information to enable the end-user to access and/or reproduce work components selected for protection in response to verification of the code.

16. The method of claim 11 wherein step (h) further includes:

(h.1) permitting the end-user to access and/or reproduce work components selected for protection in response to said determination that the end-user has been granted a license; and

(h.2) permitting the end-user to access and/or reproduce only unprotected work components indicated by the protection status information in response to said determination that the end-user has not been granted a license.

17. A method for facilitating protection of a work in computer readable form from unauthorized access and/or reproduction, said method comprising the step of:

(a) forming a computer readable medium having computer program logic recorded thereon including input means for facilitating user entry of information associated with the work; examination means for retrieving the work in computer readable form based on the entered information and examining the work to identify individual work components contained within the work; work selection means for facilitating user selection of identified work components for protection; licensing means for granting licenses to enable end-users to access and/or reproduce work components selected for protection; permission means for storing authorized access information and information associated with a protection

status for each work component, wherein the authorized access information relates to licenses granted by said licensing means; and access means for determining, based on the authorized access information, the presence of a license granted by said licensing means to an end-user and selectively permitting that end-user to access and/or reproduce work components in response to said license determination and the protection status information stored in said permission means.

18. The method of claim 17 wherein the work includes a web site.

19. A method for facilitating protection of a work in computer readable form from unauthorized access and/or reproduction, said method comprising the step of:

(a) forming a computer data signal embodied in a carrier wave and having computer program logic embedded therein including input means for facilitating user entry of information associated with the work; examination means for retrieving the work in computer readable form based on the entered information and examining the work to identify individual work components contained within the work; work selection means for facilitating user selection of identified work components for protection; licensing means for granting licenses to enable end-users to access and/or reproduce work components selected for protection; permission means for storing authorized access information and information associated with a protection status for each work component, wherein the authorized access information relates to licenses granted by said licensing means; and access means for determining, based on the authorized access information, the presence of a license granted by said licensing means to an end-user and selectively permitting that



15 end-user to access and/or reproduce work components in response to said license  
16 determination and the protection status information stored in said permission means.

1 20. The method of claim 19 wherein the work includes a web site.

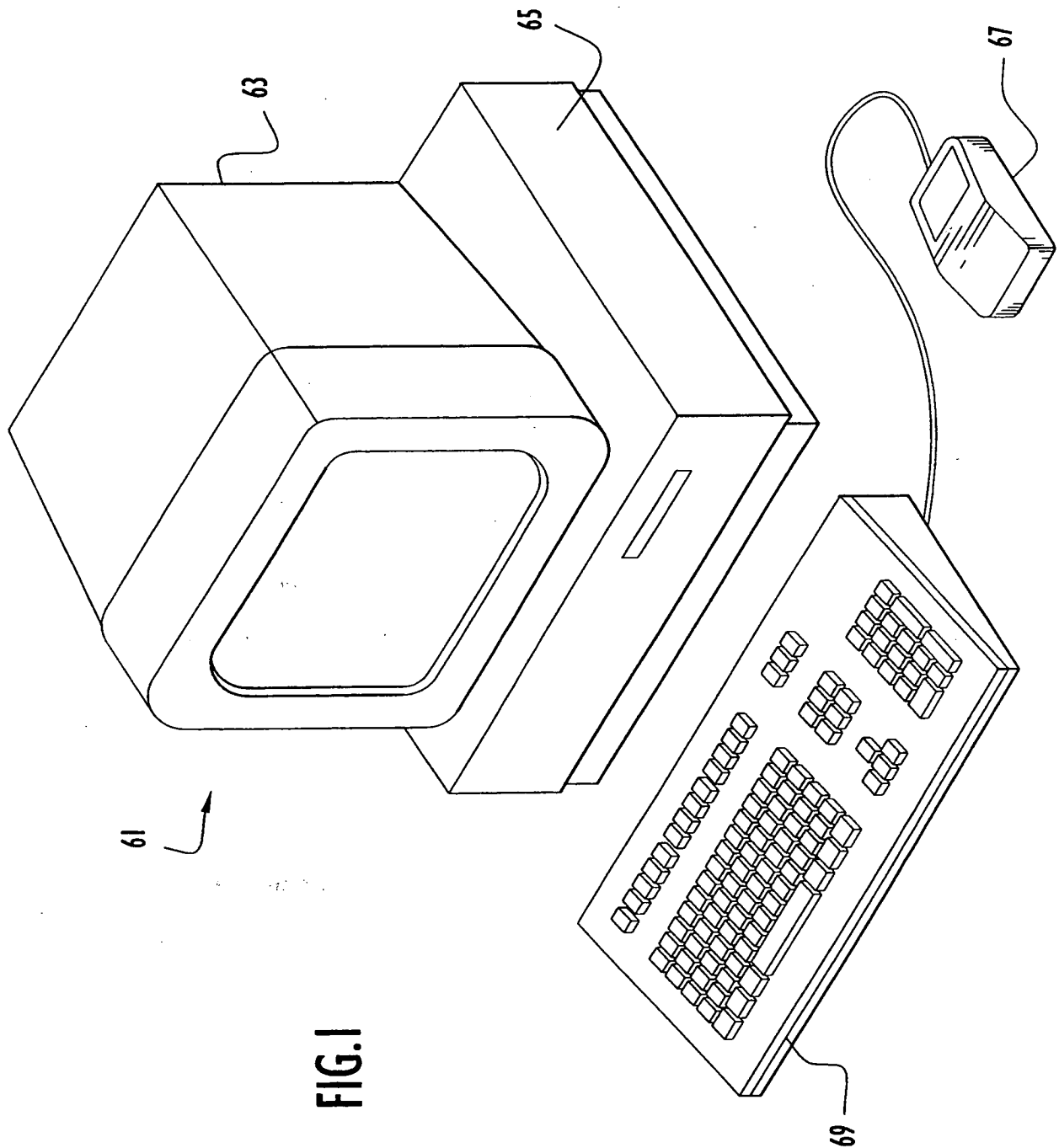
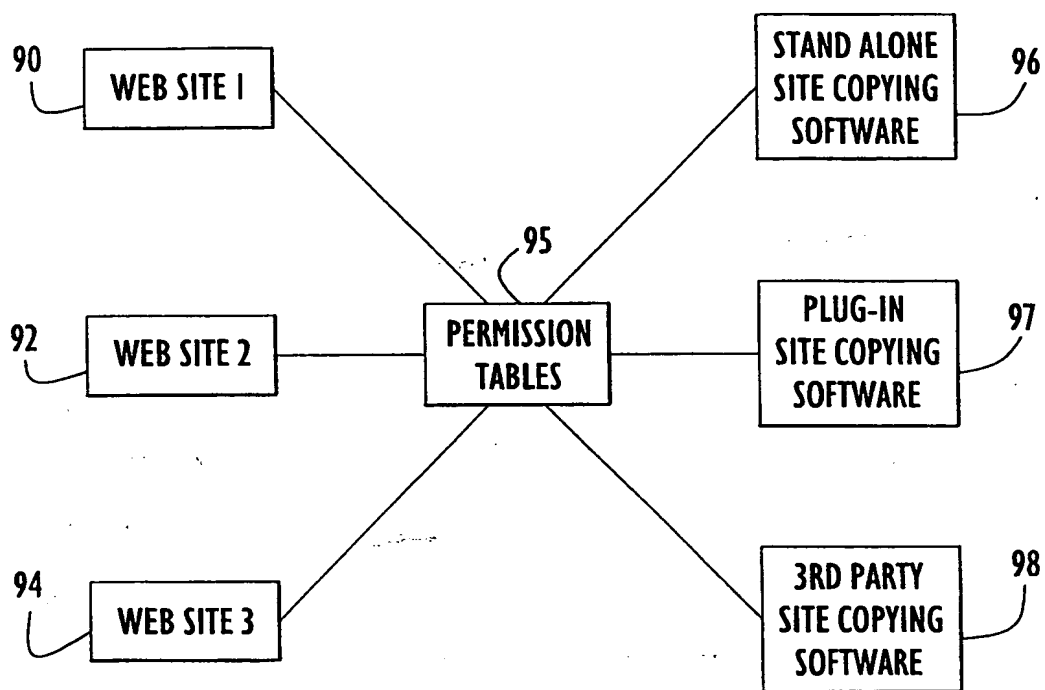


FIG. 1

**FIG.2**

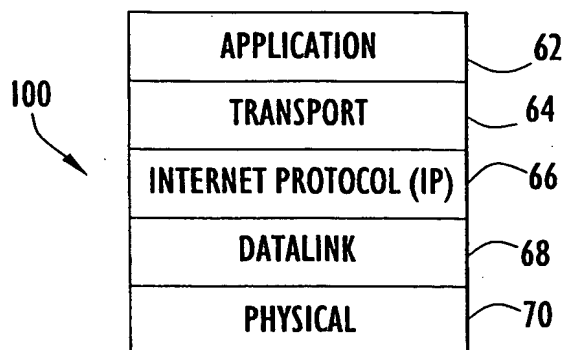


FIG. 3

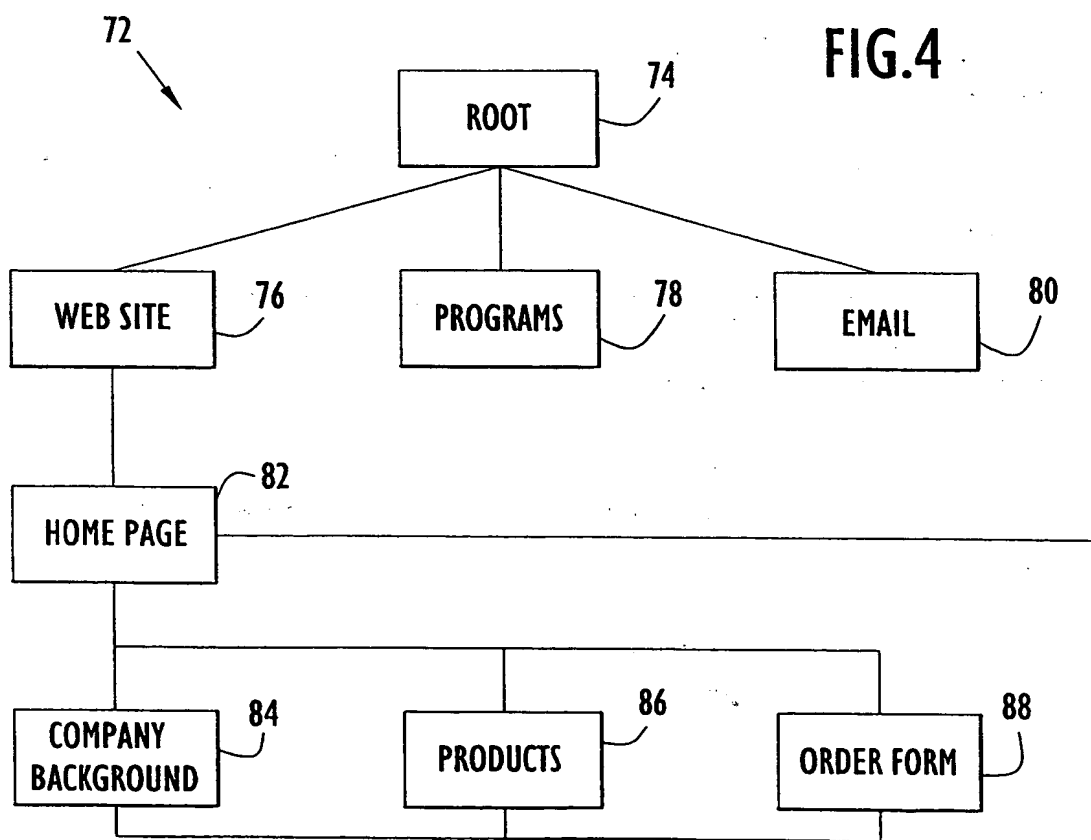


FIG. 4

```

<HTML>
<HEAD>
<TITLE> IMAGE PROTECTION APPLET </TITLE>
</HEAD>
<BODY>
<CENTER> <h1> IMAGE PROTECTION APPLET</h1> </CENTER>
<p>
THE EXAMPLE BELOW SHOWS HOW THE IMAGE PROTECTION APPLET WORKS FOR
IMAGES
BEING IMPLEMENTED VIA MOST SECURE METHOD,NAMELY VIA
AN APPLET.
</p>
<p>
THE IMAGE IS STORED AND TRANSMITTED IN ENCRYPTED FORM,
AND IF IT'S INTERCEPTED,WILL HAVE TO BE DECODED. SPECIAL
PROVISIONS ARE MADE TO PROVIDE (C) NOTICE AND CORRESPONDING
WARNINGS IN THE BODY OF THE IMAGE.
</p>
<p>
ONLY THE APPLET DOWNLOADED FROM THE SERVERS CAN DECODE
IMAGE AND SHOW IT APPROPRIATELY. WHENEVER USER MOVES TO THE
IMAGE AREA AND/OR CLICKS THERE, HE'LL RECEIVE EXPLICIT (C)
NOTICE IN HIS/HER BROWSER WINDOW.
</p>
<p>
THE APPLET TAKES WIDTH/HEIGHT OF THE IMAGE, BACKGROUND COLOR
AND (C) MESSAGE. IMAGES CAN BE ALIGNED IN FULL ACCORDANCE
WITH APPLET ALIGNMENT TAGS ETC.
</p>
<APPLET CODE="CIMAGE.CLASS" WIDTH=100 HEIGHT=100>
<PARAM NAME=IMAGENAME VALUE=TEST.GIF>
<PARAM NAME=WIDTH VALUE=100>
<PARAM NAME=HEIGHT VALUE=100>
<PARAM NAME=CNOTICE VALUE="THIS IMAGE IS (C) BY ">
<PARAM NAME=BGCOLOR VALUE=FFFFFF>
</APPLET>
</BODY>
</HTML>

```

FIG.5

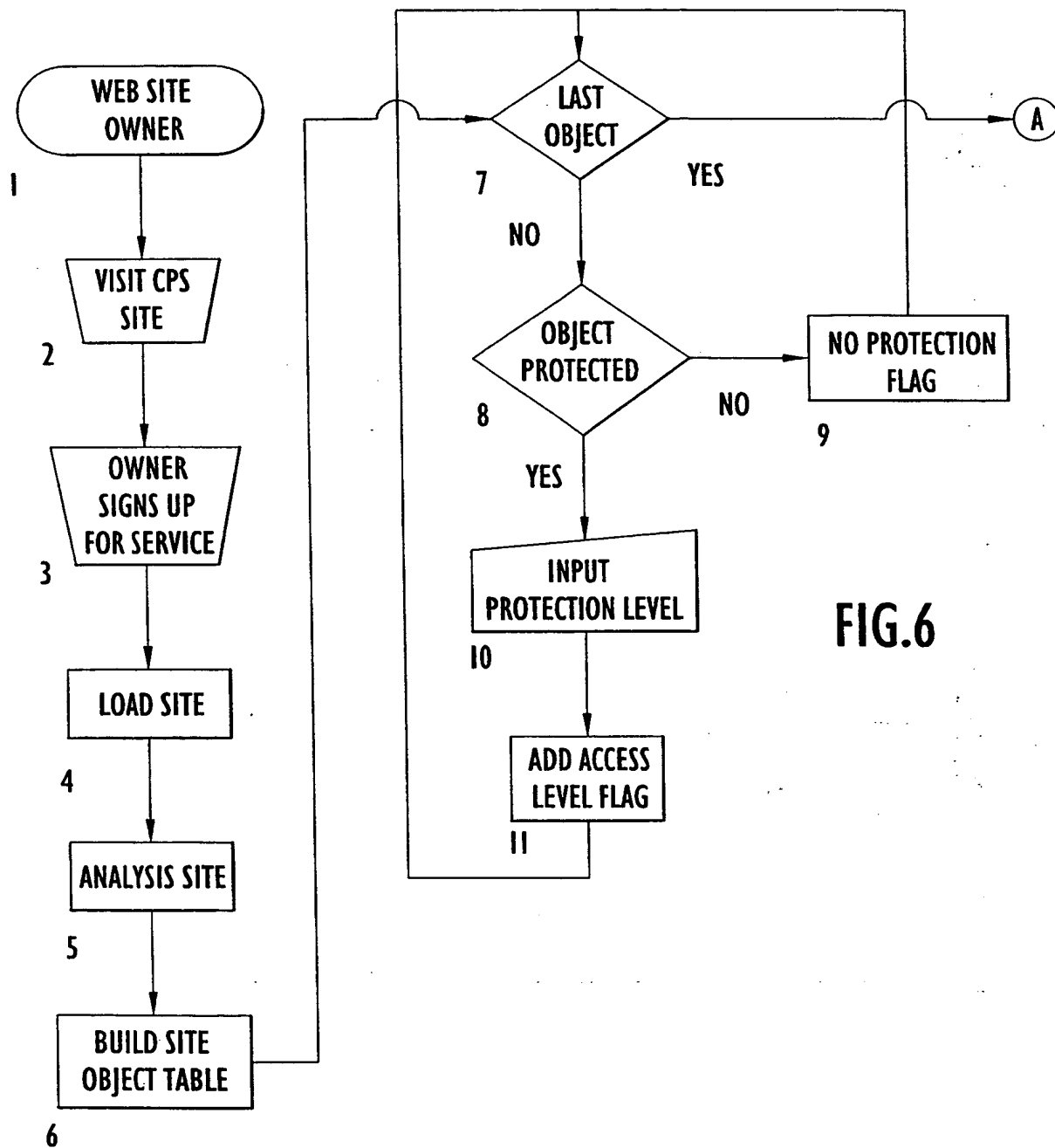


FIG.6

FIG.7

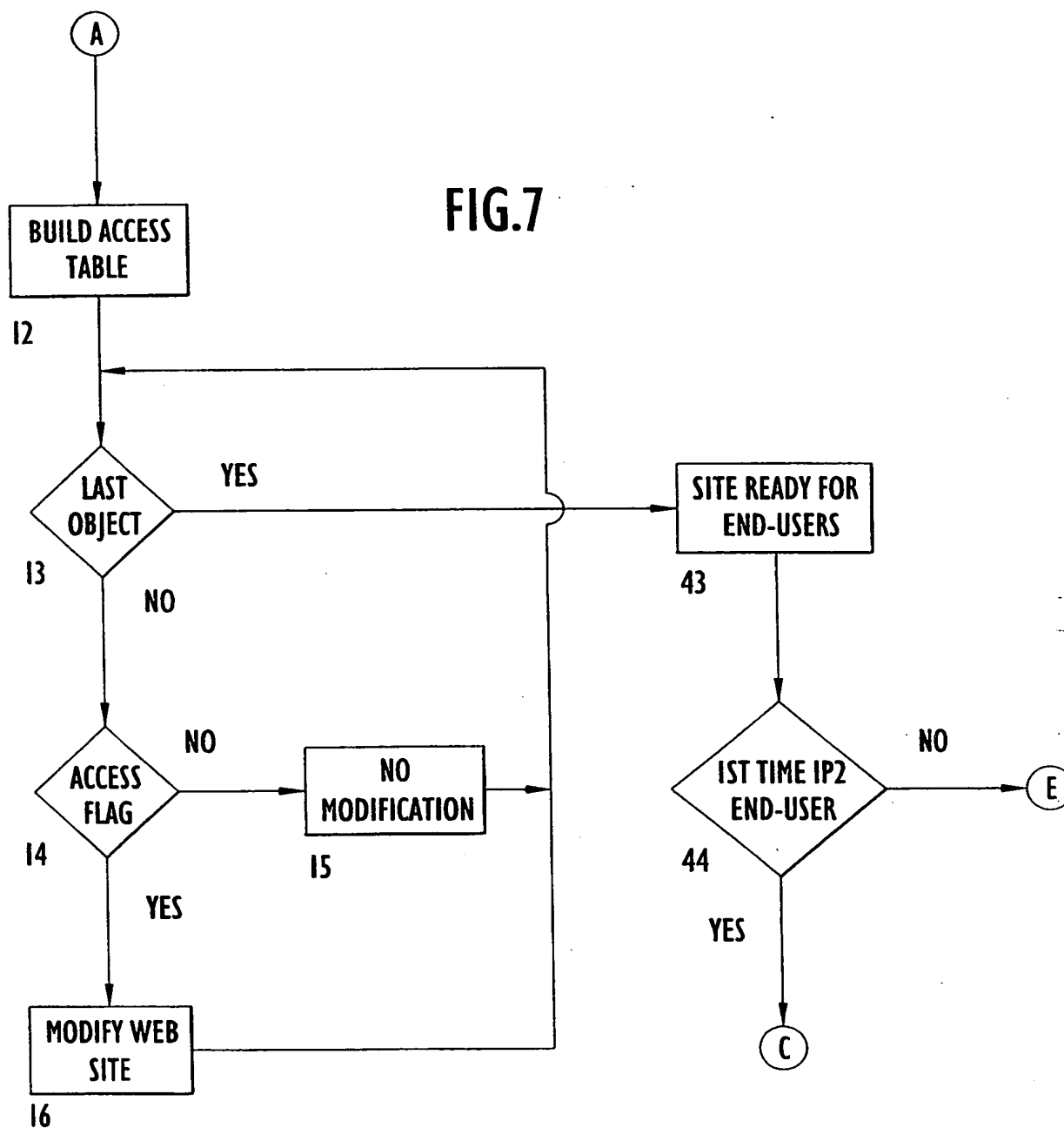


FIG.8

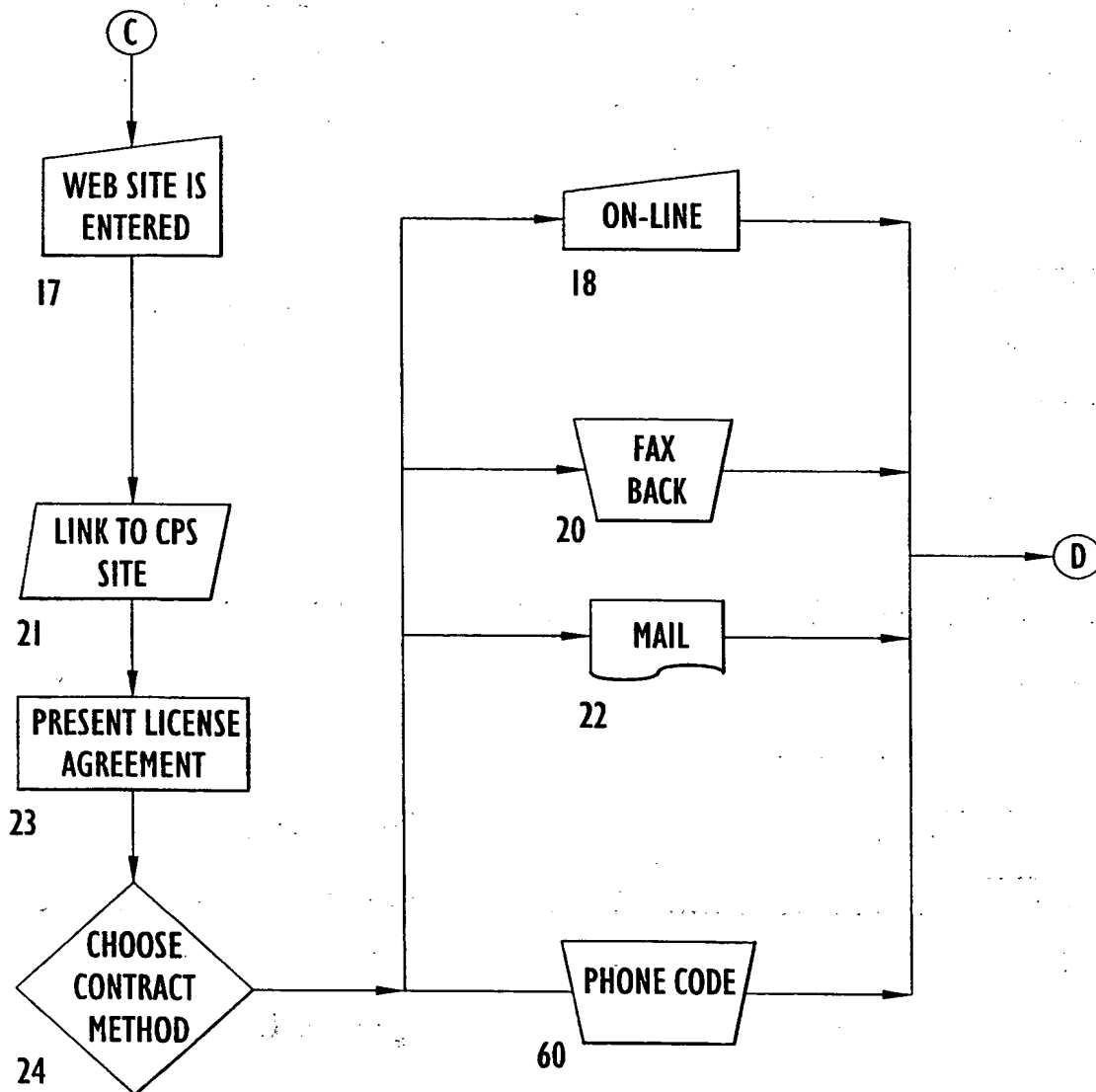




FIG.9

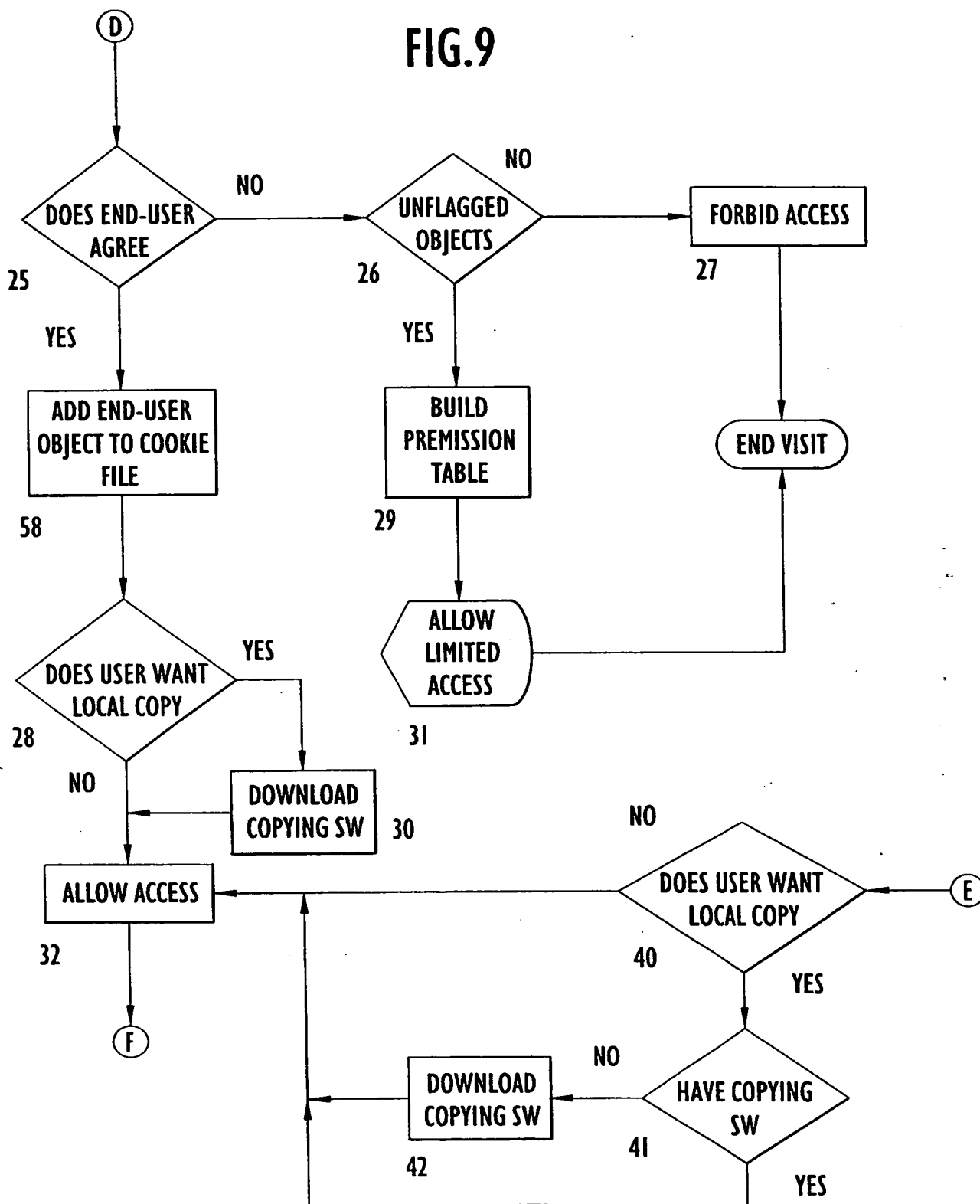
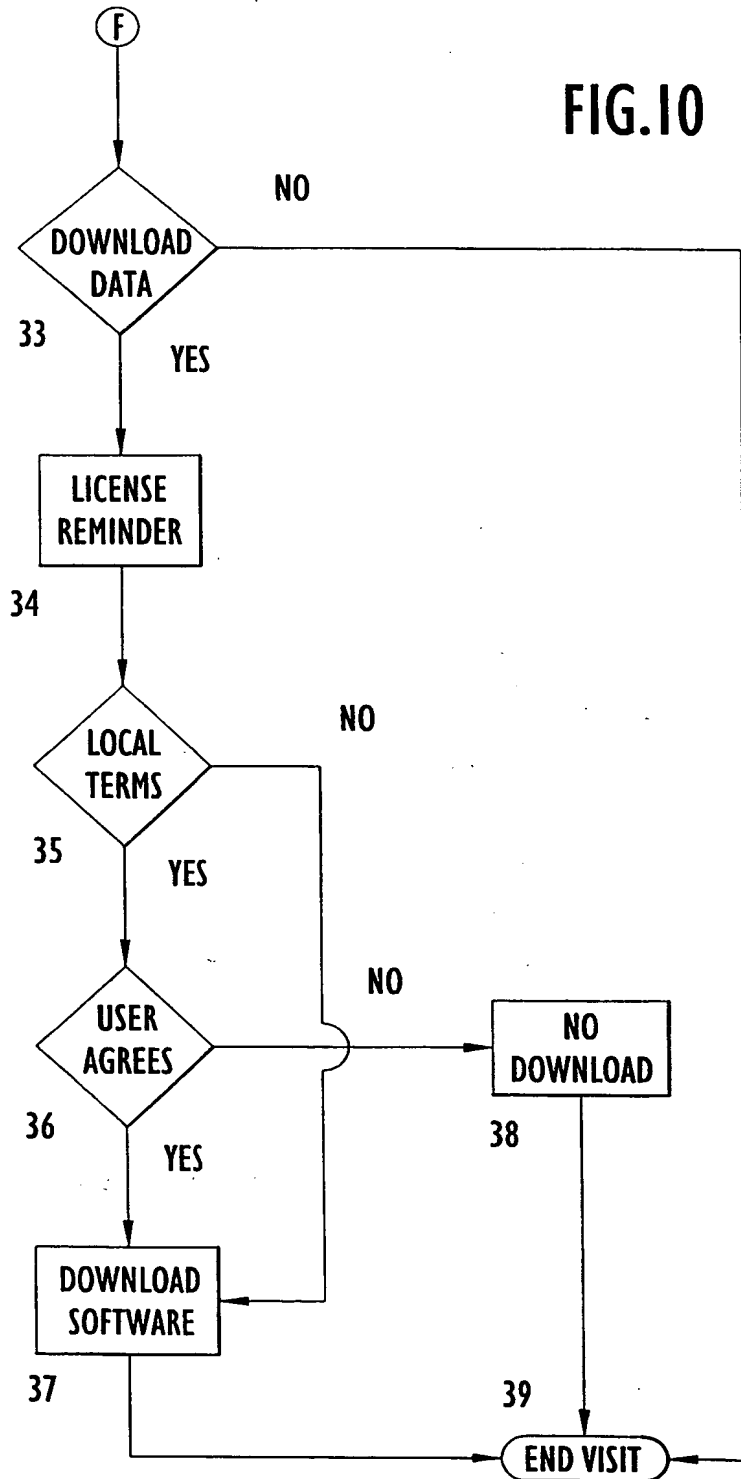


FIG.10



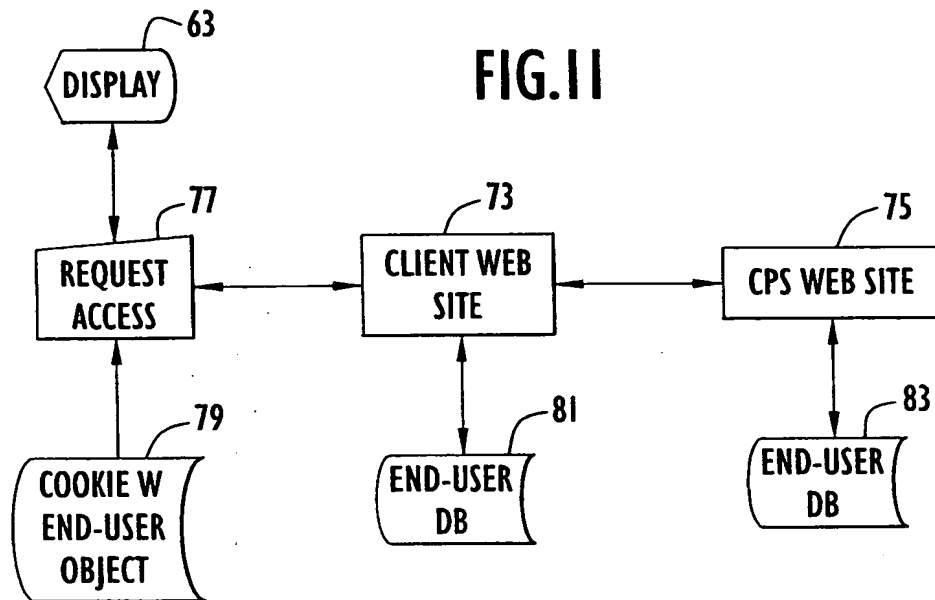
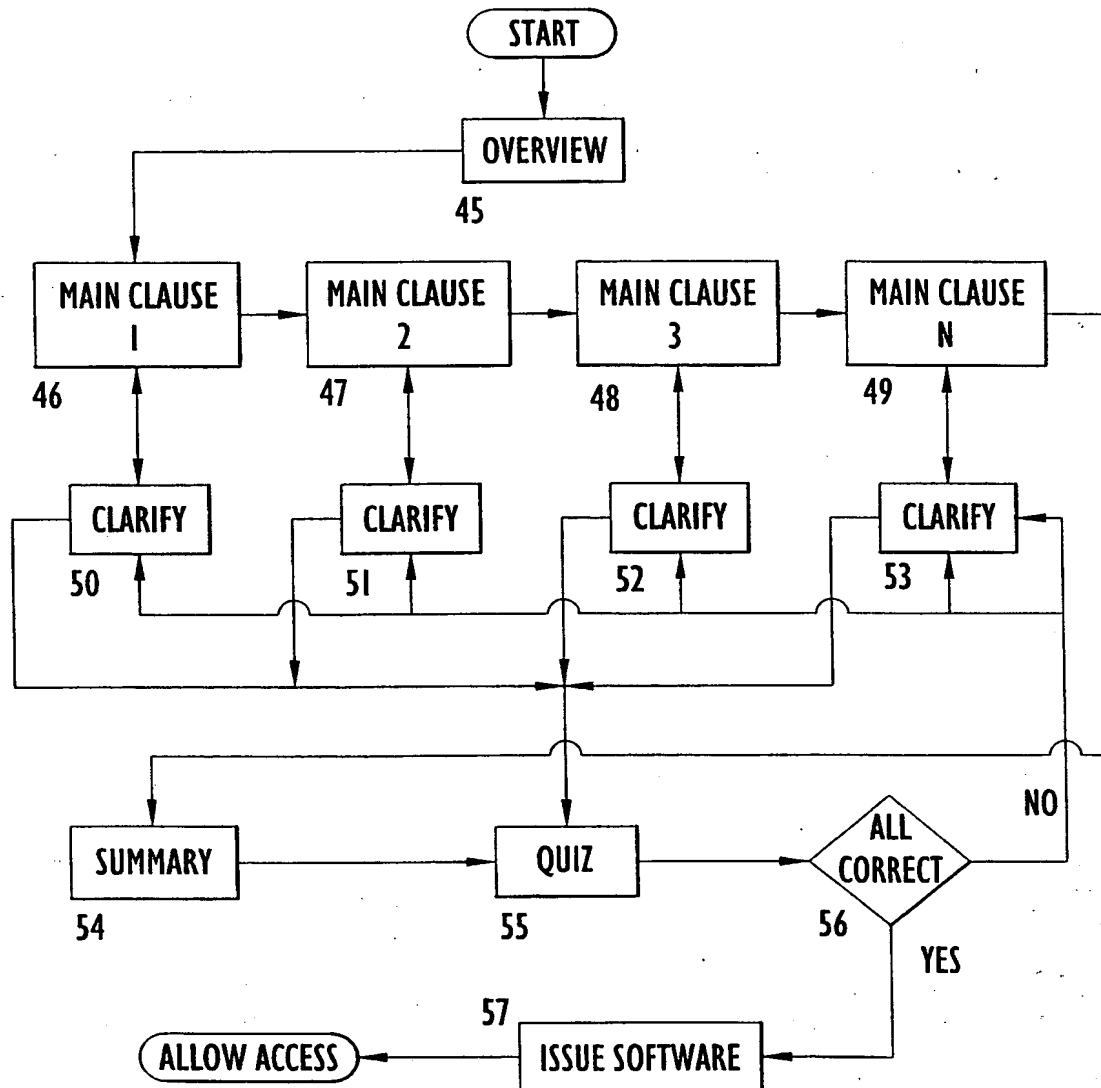


FIG.12



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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification <sup>6</sup> :</b> <b>G06F 17/00</b>	<b>A3</b>	<b>(11) International Publication Number:</b> <b>WO 98/25373</b> <b>(43) International Publication Date:</b> 11 June 1998 (11.06.98)
<b>(21) International Application Number:</b> PCT/US97/21356 <b>(22) International Filing Date:</b> 21 November 1997 (21.11.97)  <b>(30) Priority Data:</b> 60/031,424 21 November 1996 (21.11.96) US  <b>(71) Applicant:</b> INTELLECTUAL PROTOCOLS, L.L.C. [US/US]; 271 Treetop Circle, Nanuet, NY 10954 (US).  <b>(72) Inventor:</b> GLOGAU, Jordan, J.; 271 Treetop Circle, Nanuet, NY 10954 (US).  <b>(74) Agent:</b> SHAPIRO, Stuart, B.; Epstein, Edell & Retzer, Suite 400, 1901 Research Boulevard, Rockville, MD 20850 (US).		<b>(81) Designated States:</b> CA, JP, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).  <b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>  <b>(88) Date of publication of the international search report:</b> 22 October 1998 (22.10.98)

**(54) Title:** WEB SITE COPY PROTECTION SYSTEM AND METHOD**(57) Abstract**

A copy protection system and method protect web sites and other works in computer readable medium from unauthorized access and/or reproduction. In particular, the copy protection system examines (5) a web site or other work in computer readable form to ascertain the web site structure and individual web site components (8). A web site owner (3) selects identified web site components (8, 9) for protection and provides a protection level (10) for these components. An end-user attempting (17) to access protected web site components is directed to obtain a license (23) wherein the copy protection system displays licensing terms to the end-user and administers a test (55) relating to the licensing terms (35). Upon passing the test (56), the copy protection system grants the end-user a license and enables the end-user to download software (57) that facilitates access and/or reproduction of the protected web site components. If the end-user does not obtain a license, the copy protection system permits the end-user to access and/or reproduce only unprotected web site components (31).

```
<HTML>
<HEAD>
<TITLE> IMAGE PROTECTION APPLET </TITLE>
</HEAD>
<BODY>
<CENTER> <h1> IMAGE PROTECTION APPLET </h1> </CENTER>
<P>
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</P>
<P>
ONLY THE APPLET DOWNLOADED FROM THE SERVERS CAN DECODE
IMAGE AND SHOW IT APPROPRIATELY. WHENEVER USER MOVES TO THE
IMAGE AREA AND/OR CLICKS THERE, HE'LL RECEIVE EXPLICIT (C)
NOTICE IN HIS/HER BROWSER WINDOW.
</P>
<P>
THE APPLET TAKES WIDTH/HEIGHT OF THE IMAGE, BACKGROUND COLOR
AND (C) MESSAGE. IMAGES CAN BE ALIGNED IN FULL ACCORDANCE
WITH APPLET ALIGNMENT TAGS ETC.
</P>
<APPLET CODE="IMAGE.CLASS" WIDTH=100 HEIGHT=100>
<PARAM NAME=IMAGENAME VALUE=TEST.GIF>
<PARAM NAME=WIDTH VALUE=100>
<PARAM NAME=HEIGHT VALUE=100>
<PARAM NAME=NOTICE VALUE="THIS IMAGE IS (C) BY ">
<PARAM NAME=BGCOLOR VALUE=FFFFFF>
</APPLET>
</BODY>
</HTML>
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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US97/21356

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :G06F 17/00

US CL :395/200.55

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 395/200.55, 200.59, 187.01; 707/9; 380/25; 340/825.34

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y,E	US 5,761,499 ( Sonderegger) 2 June 1998, cols. 3-5.	1-20
Y,E	US 5,754,763 ( Bereiter) 19 May 1998 , cols 4-6.	1-20
Y,E	US 5,765,152 (Erickson) 9 June 1998, see entire document.	1-20

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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*B* earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
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*O* document referring to an oral disclosure, use, exhibition or other means	
*P* document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

16 JUNE 1998

Date of mailing of the international search report

101 SEP 1998

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Authorized officer

ELLIS B. RAMIREZ

Telephone No. (703) 305-3800

Form PCT/ISA/210 (second sheet)(July 1992)\*

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